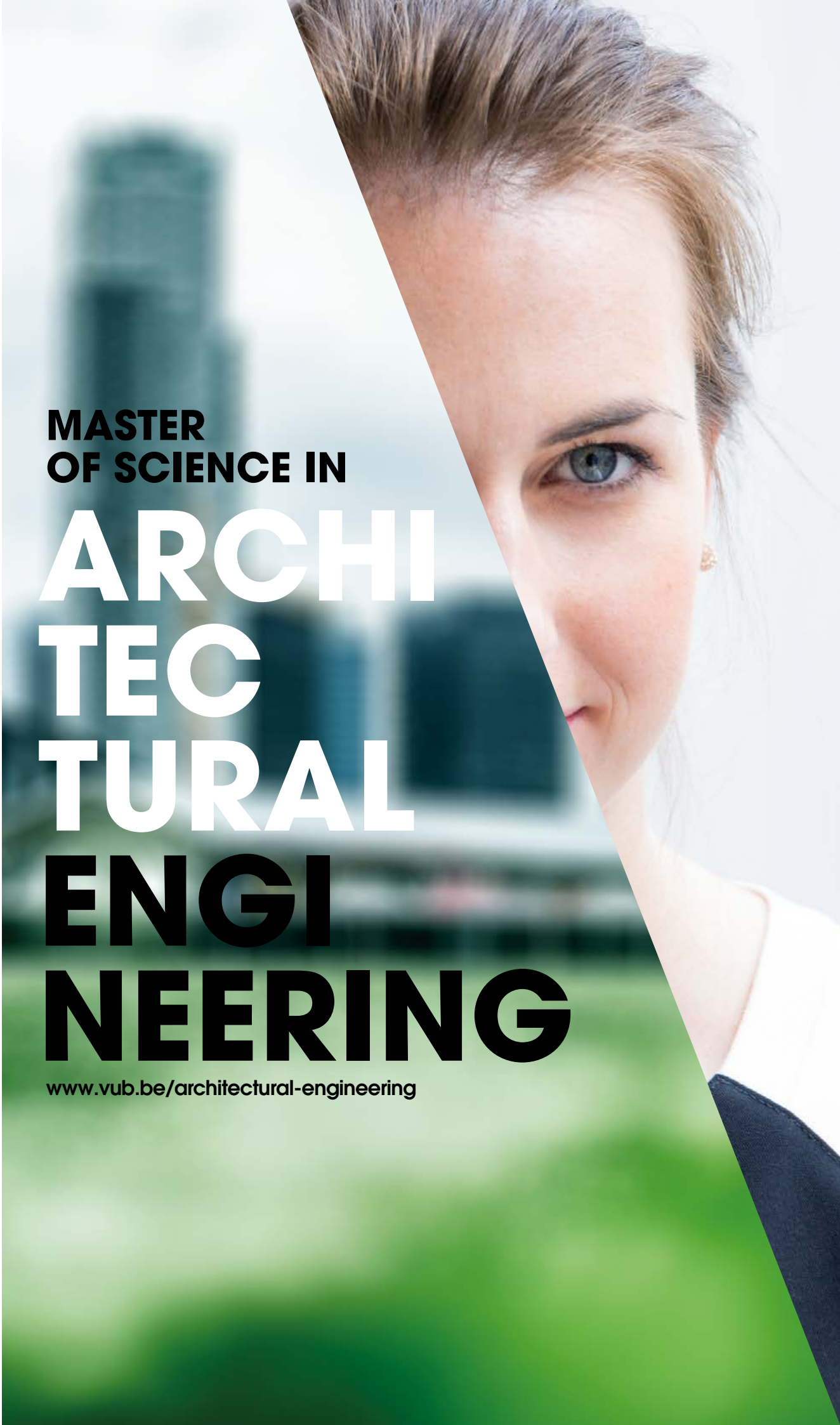
VRIJE
UNIVERSITEIT
BRUSSEL

Joint programme with

ULB



MASTER OF SCIENCE IN

ARCHITECTURAL ENGINEERING

www.vub.be/architectural-engineering

120 ECTS

2020-2021

WHY BRUSSELS

VUB and ULB shape students to be strong individuals, critical thinkers and world citizens

Vrije Universiteit Brussel (VUB) and Université libre de Bruxelles (ULB) offer high-quality English-taught programmes, supported by state-of-the-art research. Being a student in Brussels means learning in the capital of Europe and in one of the most cosmopolitan and diverse cities of the world.

At VUB and ULB, students have easy access to their teachers and assistants. Academic and administrative staff is available to answer questions; small group workshops are used to ensure close interaction between students and teachers; and fieldwork and visits in- and outside of Brussels provide you with important hands-on experience for your later career.

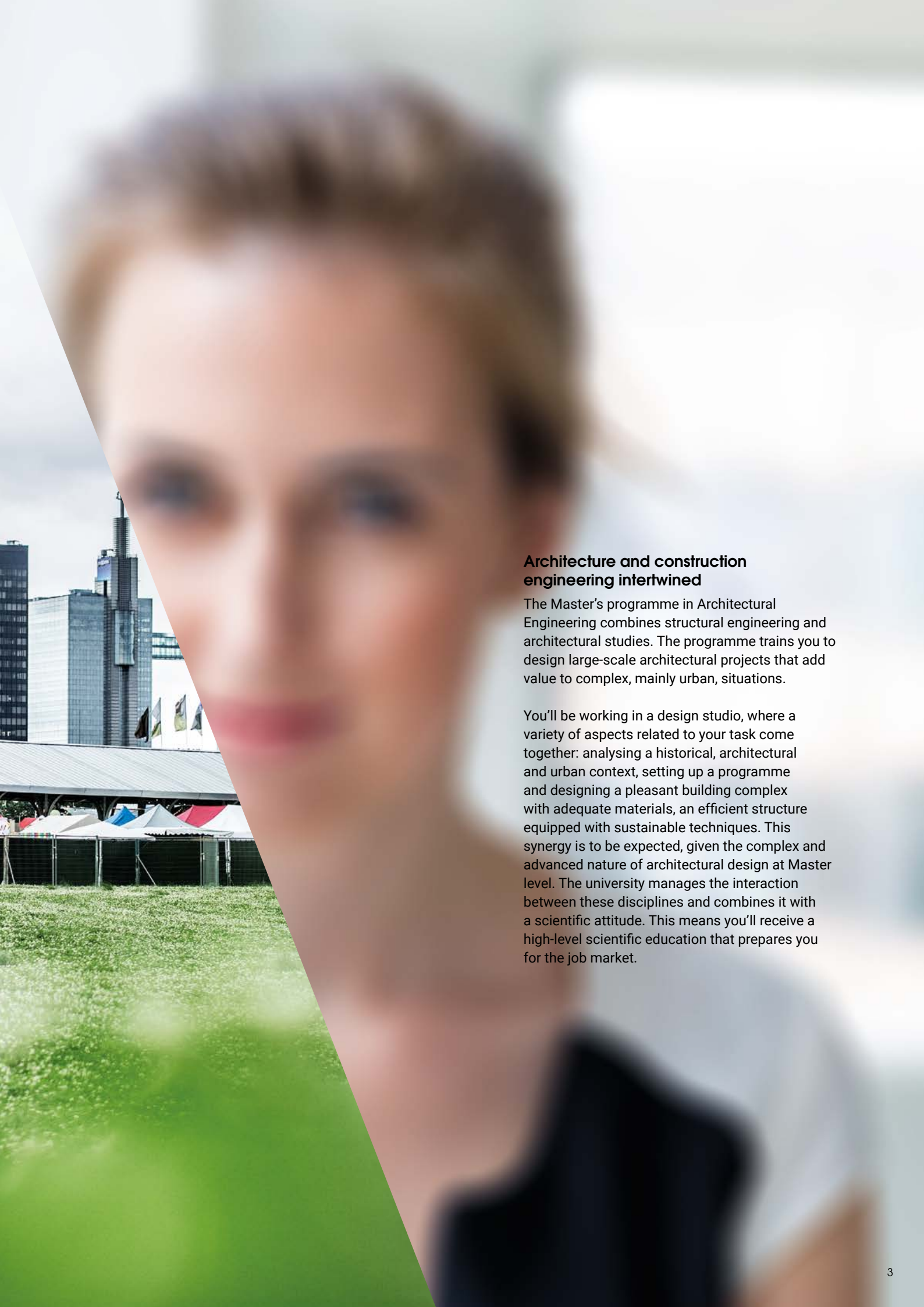
VUB and ULB are the two main universities in Brussels with a shared history of almost two hundred years. Together, both universities have around 40.000 students, almost 30 % of whom are international students from across the world.

The root of our academic success

VUB and ULB were founded on the principle of 'free inquiry' as formulated by the French mathematician and philosopher of science, Henri Poincaré (1854-1912):

"Thinking must never submit itself, neither to a dogma, nor to a party, nor to a passion, nor to an interest, nor to a preconceived idea, nor to anything whatsoever, except to the facts themselves, because for it to submit to anything else would be the end of its existence."

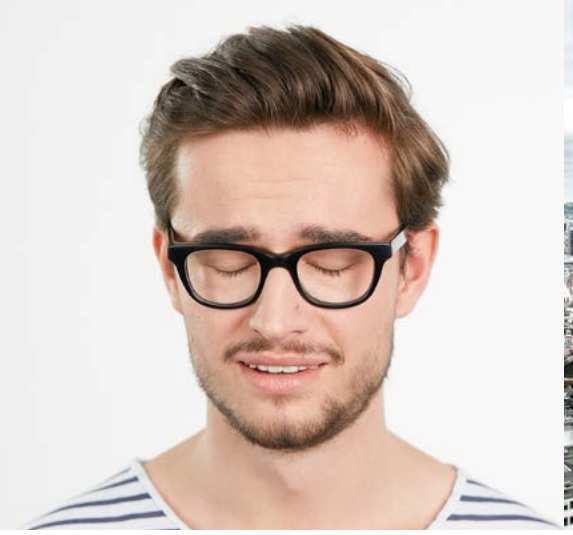
Personal growth, a positive and critical attitude, sense of responsibility and an open mind are shared values at our university from professors and researchers to students and staff members. It lies at the root of our academic success.



Architecture and construction engineering intertwined

The Master's programme in Architectural Engineering combines structural engineering and architectural studies. The programme trains you to design large-scale architectural projects that add value to complex, mainly urban, situations.

You'll be working in a design studio, where a variety of aspects related to your task come together: analysing a historical, architectural and urban context, setting up a programme and designing a pleasant building complex with adequate materials, an efficient structure equipped with sustainable techniques. This synergy is to be expected, given the complex and advanced nature of architectural design at Master level. The university manages the interaction between these disciplines and combines it with a scientific attitude. This means you'll receive a high-level scientific education that prepares you for the job market.


MASTER OF SCIENCE IN ARCHITECTURAL ENGINEERING

Harvesting synergy between engineering and architecture

The master programme in Architectural Engineering trains designers to harvest the synergy between two disciplines: engineering and architecture. The programme provides students with an advanced level of knowledge and insight, and encourages them to be creative and inventive when integrating their knowledge into a complex architectural design. Our goal is to combine the challenges and inventiveness of the modern building industry with a flair for originality and creativity.
All of this is combined with management training, aimed to thoroughly train students to lead architecture projects. An architectural engineer designs complex, sustainable buildings and large-scale architectural projects, and helps shaping the world around us. We offer this programme with cutting-edge, scientific research integrated, optimally preparing you for a wide range of careers.

Focus on construction

The Master in Architectural Engineering focuses specifically on the central position of the construction process. In addition, it highlights the role of the project supervisor, a person capable of running a complex building project. The teaching programme specifically focuses on the skills required to design, coordinate and carry out large-scale projects in a multidisciplinary environment, taking an advanced technical and scientific approach and following the principles of sustainable design and building.

Job opportunities

Architectural engineers have access to specific job opportunities, distinct from those open to architects and civil engineers. Large construction projects require a project leader who is able to integrate and coordinate the aesthetic, programmatic, structural and technical aspects. The evolution of the building industry and the equipment of contemporary architecture projects make this synthesis ever more complex and require an integrated knowledge of heating, ventilation and airconditioning, the physical behaviour of materials and structures and the principles of sustainable building. The programme prepares students for a wide range of job profiles such as:

- architect
- structural engineer
- project manager
- consultant
- employee or executive in an architectural or engineering office
- supervisor of the built heritage
- policy maker for urban planning
- researcher

Studying abroad

The curriculum of the first master year can be replaced by an alternative program of 30 to 60 ECTS at a university abroad. This international mobility offers you extra opportunities to tune the content of your curriculum with international courses, internships and research projects without delaying your study progress. Possible destinations are Milan (Italy), Cottbus (Germany) and Göteborg (Sweden).

MASTER YEAR 1	ECTS
Required courses	**35**
Design of Concrete Structures	
Design of Steel Structures	
Parametric Design of Transformable Structures	
Research Methods in Architectural Engineering	
Energy Performance of Buildings	
Spatial Structures: Design and Analysis	
Structural Renovation Techniques	
Post-war History of Construction and Architecture	
Sustainable Design Studio	**16**
Elective courses	**9**

MASTER YEAR 2	ECTS
Required courses, choice of 12 ECTS	
Architectural Engineering and Construction Project Management	4
Low Energy Design for Sustainable Buildings	4
Daylighting in Buildings	4
Design Project Competition	4
Theory of Architecture and Urbanism	4
Master Thesis Architectural Engineering	**24**
Advanced Design Studio	**12**
Elective courses	**12**

The programme is subject to change.
*Check **www.vub.be/en** for the latest information about the programme.*

ECTS (European Credit Transfer System):
1 credit represents 25-30 hours of study activity.

PROGRAMME STRUCTURE

The **design studio** takes up almost one quarter of the Master's programme and lies at the heart of the teaching project. The compulsory programme comprises courses in architecture and construction sciences: history and theory of architecture, construction and urbanism, structural engineering, design of building equipment, construction management and training in engineering research methods, which allow for the development of the specific features of this training. The optional courses allow students to specialise in a specific scientific field. The programme is complemented with a Master thesis.

AVAILABILITY OF AN INTERNSHIP EMBEDDED IN A SPECIFIC PEDAGOGICAL FRAMEWORK

The 60-days internship is an opportunity for students to develop their technical and scientific skills through professional experience in the company or external research centre of their choice, in Belgium or abroad. It's a chance to explicitly analyse the organisation of the professional world, to develop soft skills (such as communication and interaction), and improve self-awareness, criticism and reflexivity to be better prepared to evolve professionally.
The internship opens up opportunities for the master thesis, too: this can be carried out within the same company or research institute. However, during training, activities related to the thesis research should be secondary, as the main focus of the internship lies elsewhere.

TEACHING METHODS

The teaching methods combine theory lectures with exercises, seminars, workshops, visits and lab sessions.

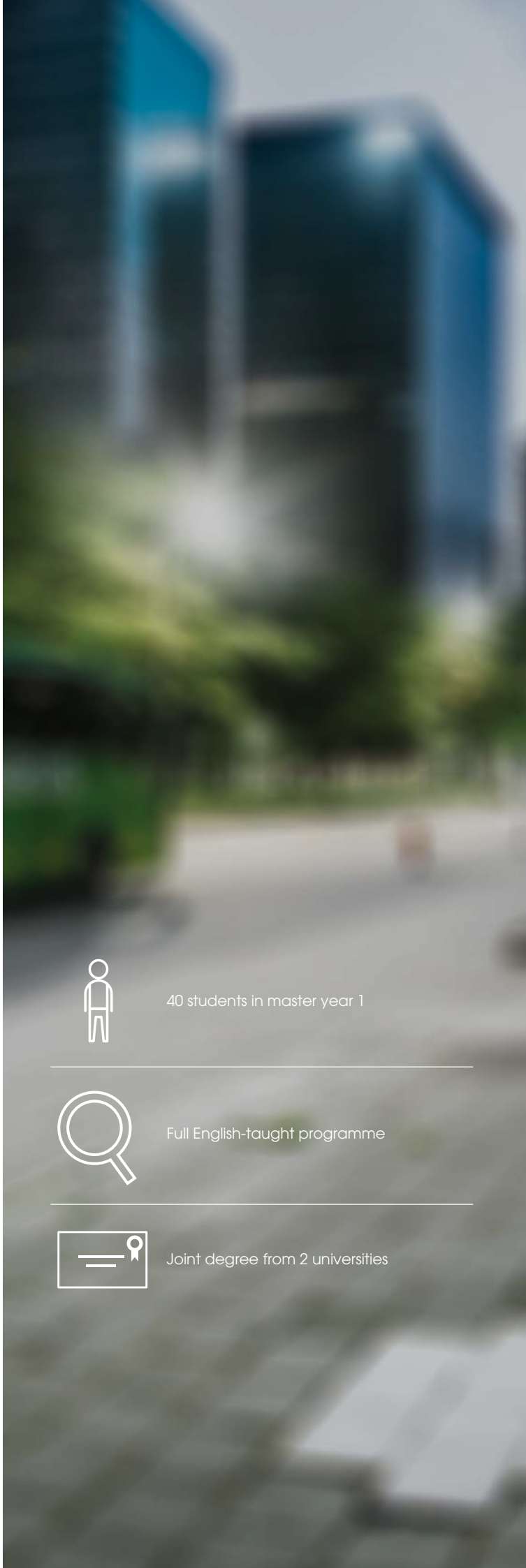
BRUFACE: ENGINEER-ING IN BRUSSELS

STUDY IN BRUSSELS

Belgian education is internationally renowned for its high standards. Every year about 70.000 students study in Brussels. It isn't surprising: with its international institutions, companies and embassies, Brussels is the beating heart of Europe. Study in Brussels? In a heartbeat!

BRUFACE

Bruface, short for Brussels Faculty of Engineering, is a cooperation of the Vrije Universiteit Brussel (VUB) and Université Libre de Bruxelles (ULB). The two universities in the city of Brussels join forces to offer English-taught programmes in the field of engineering. Bruface offers you the opportunity to study in an international context and to make use of the best facilities of both universities. But most of all this cooperation allows for expertise of both universities to be at your disposal. High-level education is within reach, at a reasonable tuition fee. At the end of the programme, you even take home a joint degree from VUB and ULB.
Bruface gives you space to breathe, quite literally. The buildings are spread out across two adjacent green campuses. There are modern sports facilities with sports halls, tennis and squash courts, fitness rooms and a swimming pool on site. The student restaurant offers meals and snacks at the self-service counters, while laboratories are all fitted with the most up-to-date equipment.



NUMEROUS FIELDS OF EXPERTISE

Expertise from VUB and ULB is gathered to offer the best education and research possibilities. Our research groups have a large portfolio with Belgian, European and international projects. As a consequence, a wide variety of fields of research is at your fingertips.

SEVEN REASONS TO STUDY AT BRUFACE

- ULB and VUB have excellent quality records
- Ideal student group sizes and excellent student-staff contact
- Reasonable tuition fees and cost of living compared to many large European cities
- All buildings of ULB and VUB campuses are within walking distance
- Green campuses 15 minutes from the city centre (using public transport)
- Brussels is the capital of Europe, a multilingual and multicultural city
- International student population

VRIJE UNIVERSITEIT BRUSSEL

ADMISSION CRITERIA

Admission is based on the review of each application: proof of meeting academic and language requirements, personal motivation, etc.

LANGUAGE REQUIREMENTS

Prospective students can provide proof of sufficient knowledge of English as language of instruction by meeting one of the following criteria:

- having successfully completed one of the following language proficiency tests:
  - TOEFL: minimum level 79 for the internet-based test (IBT)
  - IELTS: minimum level academic module 6.5
  - ITACE: minimum level B2
  - Cambridge Certificate of Advanced English (CAE), grade B
  - Cambridge Certificate of Proficiency in English (CPE), grade C
- having successfully completed at least one year of secondary education with English as language of instruction, or having successfully completed secondary school in a Belgian institution;
- having successfully completed programme units in higher education with a minimum of 54 ECTS-credits where English was the language of instruction.

For more details on admission requirements and application: **www.vub.be/en/apply**

DIRECT ACCESS

Bachelor in Architectural Engineering (VUB)

OTHERS

Admission of students from other institutions is evaluated through a complete application file. Students with a bachelor in the same field of study have direct access after the evaluation of their application file. Holders of another engineering degree must be approved by the curriculum council.

Application deadline

Prospective students are advised to apply as soon as possible, even if they have not yet obtained their degree. Applications can only be submitted through our website **www.vub.be/en/apply**

- Students who require a visa (non-EU/EEA nationals) need to submit their application before **April 1st.**
- Students who do not require a visa must apply before **September 1st**.
- Note: if the proof of English proficiency or APS certificate is not ready before the deadline, you can always submit it later instead of missing the deadline.

Tuition fees

All Flemish universities in Belgium are subsidised by the government, which results in relatively low tuition fees. The general tuition fee for our master programmes is €920/year. Some programmes have higher tuition fee for students with a non EU/EEA nationality. A detailed overview of the tuition fees can be found on:
www.vub.be/en/tuition-fees

Contact

www.bruface.eu
www.vub.be/architectural-engineering